

wherein in step (ii) the anodizing includes a first process in which an anodization current is a steady value and a second process in which the anodization current decreases after said first process, and

wherein said first process and said second process occur consecutively.

38. (New) A process for producing a nanostructure comprising an anodized film including a nanohole on a substrate, said process comprising steps of:

(i) preparing a film including aluminum on the substrate which has a surface containing at least one material selected from the group consisting of semiconductors, noble metals, Mn, Fe, Co, Ni, Cu and carbon; and

(ii) anodizing the film,

wherein in step (ii) the anodizing includes a first process in which an anodization current is a steady value and a second process in which the anodization current decreases after said first process, and

wherein said first process and said second process occur consecutively.

39. (New) A process for producing a nanostructure according to Claim 37, wherein the anodizing terminates after the anodization current is decreased from a steady value to 95% or below of the steady value.

40. (New) A process for producing a nanostructure according to Claim 37, wherein the anodization current returns to the steady value after said second process,

and wherein the anodizing terminates by the time the anodization current reaches the steady value after said second process.

41. (New) A process for producing a nanostructure according to Claim 37, wherein the nanohole passes through the anodized film from the surface of the anodized film to the surface of the substrate.

42. (New) A process for producing a nanostructure according to Claim 39, wherein a process for enlarging a diameter of the nanohole is performed after step (ii).

43. (New) A process for producing a nanostructure according to Claim 37, wherein the surface of the substrate on the side of the film has a first region having first electrical resistivity and a second region having second electrical resistivity that is different from the first electrical resistivity.

44. (New) A process of producing a nanostructure according to Claim 37, wherein the surface of the substrate on the side of the film has a first region having first electrical resistivity and a second region having second electrical resistivity that is different from the first electrical resistivity, and the nanohole is on the second region and does not pass through the anodization film from the surface of the anodized film to the surface of the substrate.

45. (New) A process for producing a nanostructure according to Claim 37, wherein a process for forming recessed portions on the film is performed before step (ii).

46. (New) A process for producing a nanostructure according to Claim 37, wherein a process for growing a carbon nanotube in the nanohole is performed after step (ii).

47. (New) A process for producing a nanostructure according to Claim 38, wherein the anodizing terminates after the anodization current is decreased from a steady value to 95% or below of the steady value.

48. (New) A process for producing a nanostructure according to Claim 38, wherein the anodization current returns to the steady value after said second process, and wherein the anodizing terminates by the time the anodization current reaches the steady value after said second process.

49. (New) A process for producing a nanostructure according to Claim 38, wherein the nanohole passes through the anodized film from the surface of the anodized film to the surface of the substrate.

50. (New) A process for producing a nanostructure according to Claim 47, wherein a process for enlarging a diameter of the nanohole is performed after step(ii).--